YARKHO, A.

Safeguarding employed adolescents. Okhr. truda i sots. strakh. 3 no.8:66-68 Ag '60. (MIRA 13:9)

1. Pravovoy inspektor Moskovskogo oblastnogo soveta profsoyuzov.
(Children--Employment)

MITIN, V.; YARKHO, A.

Manual for practical workers ("Legislation concerning industrial hygiene and industrial safety" by IA.L. Kiselev. Reviewed by V.Mitin, A.IArkho). Okhr. truda i sots. strakh. 3 no.7:77-78 Jl '60. (MIRA 13:8)

1. Zaveduyushchiy otdelom okhrany truda Mosoblsovprofa (for Mitin).
2. Pravovoy inspektor Mosoblsovprofa (for Yarkho).
(Industrial hygiene--Law and legislation)
(Kiselev, IA.L.)

YARKHO, A.

Breaks for nursing. Okhr. truda i sots. strakh. 4 no.3:59-60 Mr '61. (MIRA 14:3)

1. Pravovoy inspektor Moskovskogo oblastnogo soveta profsoyuzov.
(Maternal and infant welfare)
(Rest periods)

YARKHO, A., yurist

Contribution of the state to future mothers. Okhr.truda i sots. strakh. 5 no.3:40-41 Mr '62. (MIRA 15:4)
(Maternal and infant welfare)

84045

S/147/60/000/003/004/018
E022/E420

10.4100 only 2615, 2207, 2310

AUTHOR: Yarkho, A.A. (Khar'kov)

TITLE: Heat Transfer in the Vicinity of a Blunt Leading Edge of a Cylindrical Wing in Yaw

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya tekhnika, 1960, No.3, pp.22-27

TEXT: A steady two-dimensional yawed cylindrical wing is considered. The flow in the boundary layer is assumed to be laminar, while the temperature of the wing surface, Prandtl number and specific heat are taken to be constant. Suffix o denotes conditions at the outer edge of the boundary layer. The system of coordinates is as shown in Fig.1. With the above assumption, all parameters of the flow in the boundary layer depend only on x and y, while at its outer edge they depend only on x. The relevant equations of flow are given in Eq.(1) to (6) with the boundary conditions as follows:

1) $u = v = w = 0$, $T = T_w = \text{const}$ at $y = 0$ (i.e. on the wing surface)
2) $u = U_o(x)$, $w = W = \text{const}$, $T = T_o(x)$ at $y \to \infty$ (i.e. at the outer edge of the boundary layer).

The velocity distribution along the outer edge of the boundary

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Heat Transfer in the Vicinity of a Blunt Leading Edge of a Cylindrical Wing in Yaw

layer is assumed known and the variation of viscosity with temperature is that recommended in Ref.3 and is given by Eq.(7), where T_∞^* denotes the partial stagnation temperature (with the component U_o only brought to zero) while T_s is a constant ($\approx 119°C$ for air). Near the leading edge of the wing U_o is small hence it is assumed that the last two terms in Eq.(4) may be neglected and that the temperature and density at the outer edge of the boundary layer are those given by the partial stagnation conditions (i.e. $T_o = T_\infty^*$, $\rho_o = \rho_\infty^*$). Following Ref.4, the coordinate y is transformed into η, whence Eq.(8) to (11) are obtained. If it may be assumed that $\rho_o/\rho = 1$ then Eq.(11) is superfluous and the velocity field will be the same as for the incompressible fluid (see Ref.5), and is given by Eq.(12) to (14) plus (15) to (18), to evaluate functions f and g. Changing the variable η to ζ in Eq.(11) leads to Eq.(19) with the boundary conditions: $\bar{T} = \bar{T}_w = \text{const}$ when $\zeta = 0$ and $\bar{T} = 1$ when $\zeta \to \infty$. This partial non-homogeneous equation is solved by means of

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84045
S/147/60/000/003/004/018
E022/E420

Heat Transfer in the Vicinity of a Blunt Leading Edge of a Cylindrical Wing in Yaw

separation of variables, Eq.(20). The heat flux from the gas to the wing is given by Eq.(21). Differentiating Eq.(20) with respect to ξ gives Eq.(22), which for Prandtl number of 0.6 to 1 may be approximated by Eq.(23). Introducing this relation in Eq.(21) results eventually in Eq.(25). For $P_r = 1$ this reduces to Eq.(26). Compared with results of Reshotko (Ref.2) within the range $0 \leqslant T_w/T_\infty \leqslant 1$, the error induced by using the approximate relation of Eq.(26) does not exceed 16% if $\omega < 2$ (e.g. $M_\infty = 5$, $\chi < 65°$ or $M_\infty = 4$, $\chi < 70°$). There are 1 figure and 5 references: 4 Soviet (two of them translations) and 1 English.

SUBMITTED: February 15, 1960

Card 3/3

REYTLINGER, S.A.; YARKHO, I.S., (Moskva)

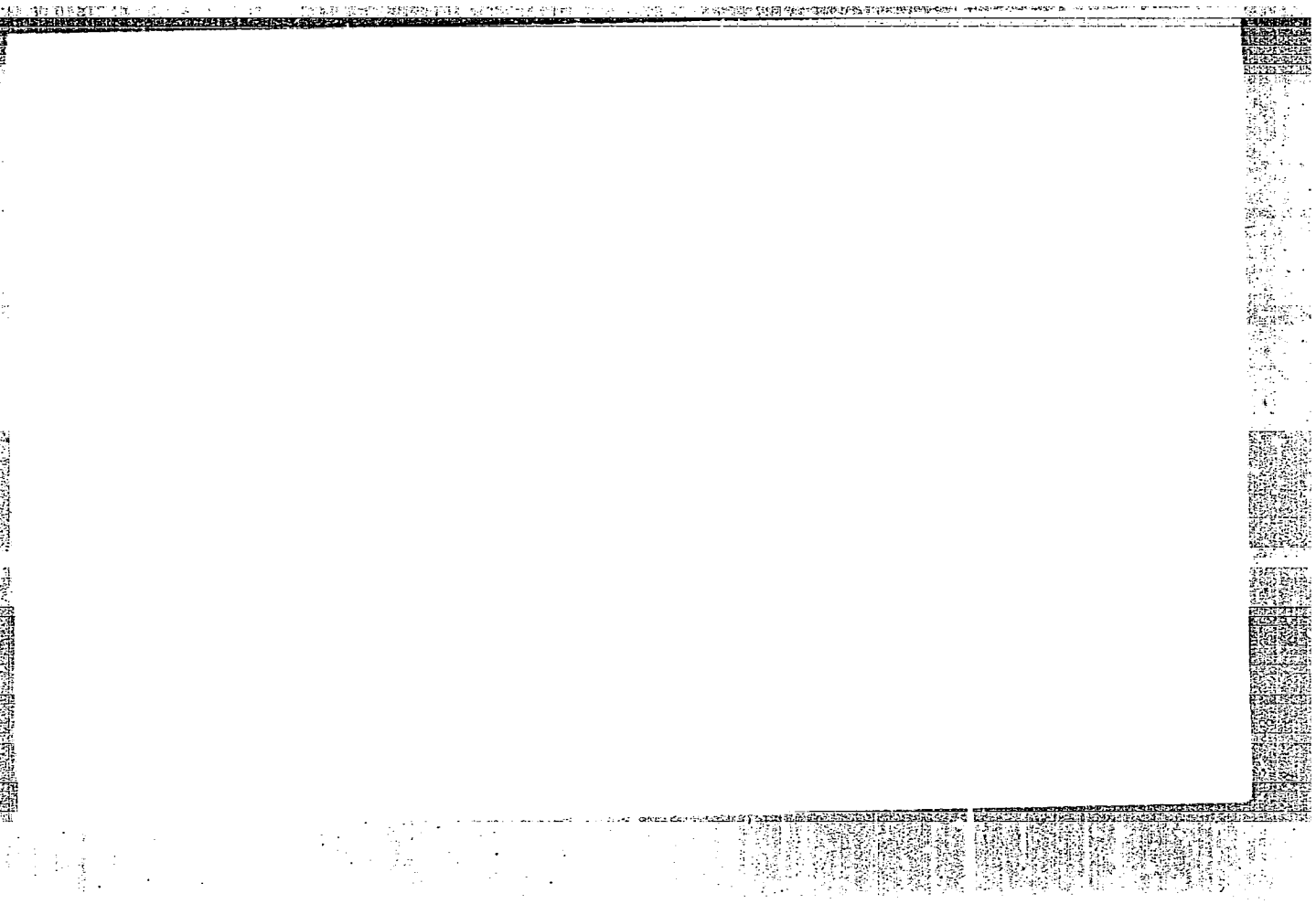
The gas permeability of crystallizing polymers. Koll.zhur.17 no.5: 387-390 S-O '55. (MLRA 9:1)
(Polymers and polymerization)

YAKHO, I. S.

2732. Gas permeability of crystallising polymers. S. A. REITLINGER and I. S. YAKHO. *Kolloid Zhur.*, 1955, 17, 387–90; *Chem. Abs.*, 1956, 50, 2248. Permeability of stretched gutta percha, polyethylene, and polyamide was smaller than that before stretching; *e.g.* for hydrogen at 20° C the coefficient K was, respectively, 10, 6, and 0·3 before, and 8, 3, and 0·15 × 10^{-5} cc./sec. atm. after stretching. Crystallisation of natural rubber at −25° lowered K and raised the density of the rubber; identical effects were produced by stretching a vulcanised rubber film. The temperature coefficient of K was raised by stretching polymer films. 382D24.3403

M. A. YOUTZ
2 copies

PMR



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001962120019-0"

YARKHO, I.S.

USSR/Physics of High - Molecular Substances D-9

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11547

Author : Reytlenger, S.A., Maslennikova, A.A., Yarkho, I.S.
Inst :
Title : Gas Permeability of Polyorganic Siloxane Rubber.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 11, 2553-2557

Abstract : No abstract.

Card 1/1

SINICHKIN, K.I., kand. tekhn. nauk; AL'PERIN, V.I., inzh.; YARKHO, I.S., inzh.

Increasing the transparency of glass reinforced plastics. Stroi. mat. 10 no.11:27-28 N '64. (MIRA 18:1)

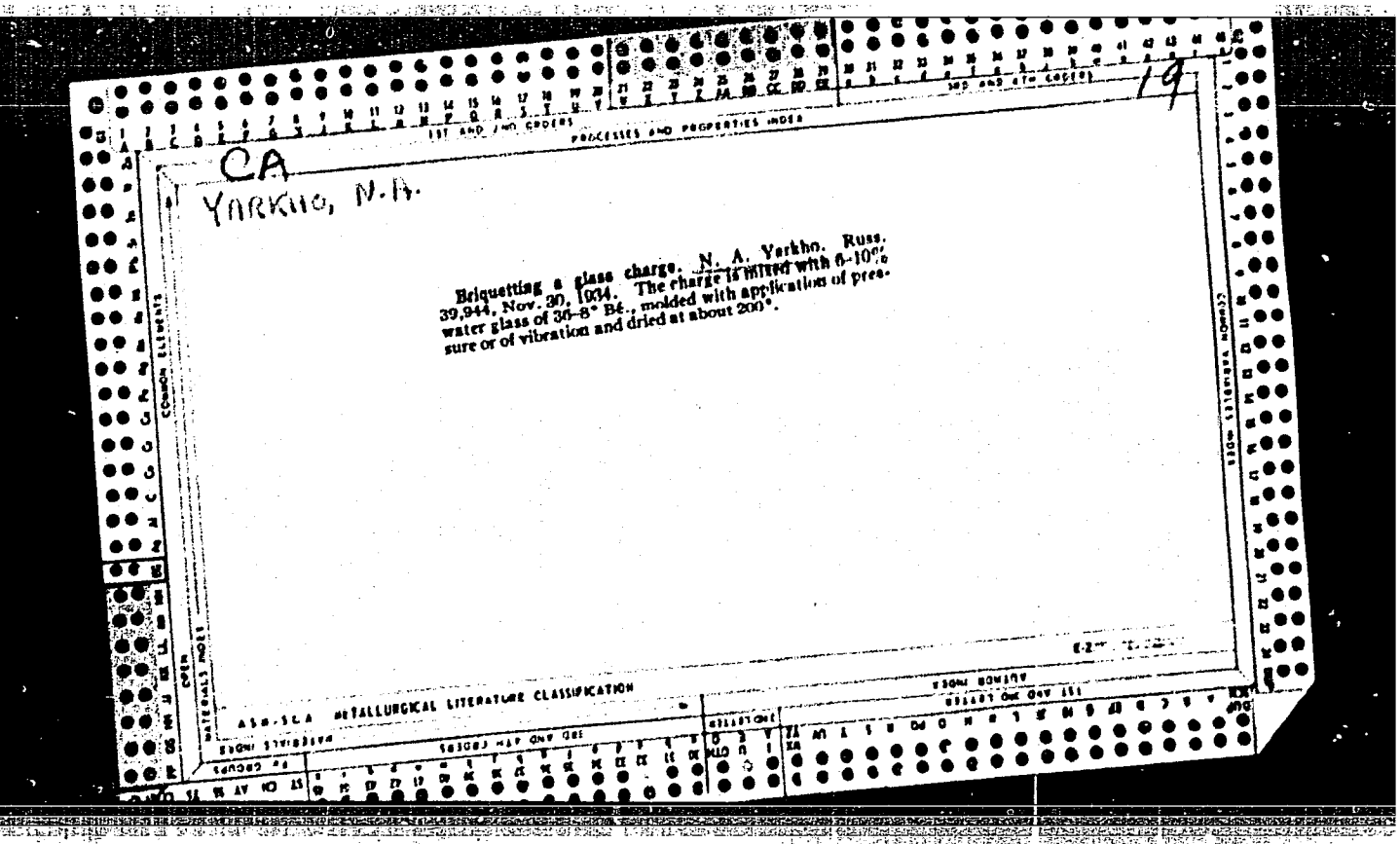
YARKHO, N.A.

CA

9

Briquetting metal shavings with water glass. N. A. Yarkho and S. A. Tolchinskii. Russ. 34,??9, Feb. 28, 1934. Metal shavings are moistened with water glass and heated in molds to give them the required mechanical strength.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

YARKHO, N.A.

Briquetting a glass charge. N. A. Yarkho. Russ. 39,944, Nov. 30, 1934. The charge is mixed with 6–10% water glass of 36–8° Bé., molded with application of pressure or of vibration and dried at about 200°.

SOV/130-58-8-2/18

AUTHOR: Yarkho, N.A.

TITLE: Pelletisation of Iron Ores and Concentrates (Okomkovaniye zheleznykh rud i kontsentratov)

PERIODICAL: Metallurg, 1958, 3 Nr 8, pp 3 - 8 (USSR)

ABSTRACT: After discussing the changing raw-materials situation which increasingly requires the production of lumps from fine ores and concentrates, the author compares the relative merits of sintering and pelletising. He goes on to give an account of pelletising equipment and methods, mainly American, German, Swedish and Canadian. He outlines a German vacuum briquetting process and notes that a similar process has been developed at the MIS (Moscow Steel Institute) and tested at the imeni Dzerzhinskogo (imeni Dzerzhinskiy) Works. Another Soviet process is the hardening of pellets, containing lime, and a catalyst ("chemical-catalytic" process) and about 5% moisture by the action of CO_2-containing flue gases; and at the TsNIIChM (Central Research Institute for Ferrous Metallurgy) the reduction on the strand of pellets to metallic iron has been under development since 1956. In the latter process, the raw pellets containing excess anthracite are

Card 1/2

Pelletisation of Iron Ores and Concentrates SOV/130-58-8-2/18

roasted at 1 250 - 1 300 °C, 80% of the iron being reduced to the metallic state. The author concludes by stating that the pelletisation of fine concentrates is very important for the Soviet iron and steel industry.
There are 6 figures.

1. Iron ores--Processing

Card 2/2

S/127/60/000/012/005/005
B012/B054

AUTHORS: Yarkho, N. A. and Kontorovich, G. I. (Moscow)

TITLE: Enrichment of oxide iron ores to obtain concentrates containing metallic iron

PERIODICAL: Gornyy zhurnal, no. 12, 1960, 44-46

TEXT: Since oxide iron ores are finely interspersed in most deposits of the USSR (Krivorozhskiy Basin, Lisakovskoye deposit, Ayatskoye deposit, Kerchenskoye deposit, etc.), gravity- and magnetic dressing are not sufficient to meet the high demands made on the quality of concentrates. As calculations of the institut Mekhanobr (All-Union Scientific Research Institute for Mechanical Processing of Minerals) for the Tsentral'nyy gorno-obogatitel'nyy kombinat (Central Combine of Mining and Dressing) in Krivoy Rog have shown, flotation is cheaper but very difficult with brown iron ores of complex composition. In 1956, the authors carried out investigations at the laboratoriya obogashcheniya (Laboratory of Dressing) of their association. It was shown to be possible to obtain lumps with 60-70% of metallic iron from the concentrates of the KMA, YuGOK, and the

Card 1/3

Enrichment of oxide iron ores...

Olenegorskaya obogatitel'naya fabrika (Olenegorskaya Dressing Plant). The development of a method of dressing oxide iron ores to obtain concentrates with a metallic iron content (Ref., footnote p.45, patent application no. 622312/22) has been started in 1957. Oxide quartzites from Krivoy Rog and brown iron ores from the Akkermanovskoye deposit, Lisakovskoye deposit, and Kerchenskoye deposit were used as initial materials. On the basis of these investigations, the authors state as follows: 1) Roasting of iron ores at high temperatures (1100-1200°C) permits to obtain concentrates with more than 90% iron (85-90% of which is metallic iron) in high yields. Brown iron ores which are difficultly enriched can be efficiently dressed by this method. 2) The use of this method for dressing naturally alloyed iron-chrome-nickel ores warrants a nearly complete transfer of nickel into the concentrates, and the elimination of the major part of chromium from them. 3) Due to solidification of the charge, and increase in thermal conductivity, the reduction rate increases by the 5-7 fold. 4) The increase in costs is compensated by the saving of coke and the increase in output of metallurgical machines. 5) The concentrates obtained can be formed to pieces by briquetting or sintering in a reducing medium. The principal advantage of this method

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over the similar American RN procedure (Ref., footnote p.46) is the possibility of applying it on a large scale to high-performance sintering machines. The editors of this periodical point out that the authors have solved their task in a technically proper way but that the scheme suggested with several stages of fine crushing demands further investigation (to obtain the required data for an efficient analysis). There are 3 tables and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: TsNIIchermet, Moskva (Central Scientific Research Institute of Ferrous Metallurgy, Moscow)

YARKHO, N.A.; RAVICH, B.M.; ANDREYEVA, I.A.

Production of coke from gas coals. Koks i khim. no.3:11-12 '62.
(MIRA 15:3)

1. Moskovskiy gornyy institut.
(Coke)

YARKHO, N.A., inzh.; RAVICH, B.M., kand. tekhn. nauk

Pelletizing a fluorite flotation concentrate. Stal' 24 no.1:36-37 Ja '64. (MIRA 17:2)

RAVICH, B.M., kand.tekhn.nauk; YARKHO, N.A., inzh.

Hot briquetting of ores. Stal' 24 no.2:118-119 F '64. (MIRA 17:9)

L 29733-66 EWP(m)/EWT(l)/EWT(m) WW/JD

ACC NR: AP6010201 SOURCE CODE: UR/0201/66/000/001/0043/0047

70
B

AUTHOR: Kalinin, E. K.; Yarkho, S. A.

ORG: Moscow Aviation Institute (Movskovskiy aviatsionnyy institut)

TITLE: Alternating nature of the flow and heat transfer in the transition region from laminar to turbulent conditions in a tube

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 1, 1966, 43-47

TOPIC TAGS: heat transfer, turbulent flow, laminar flow, hydraulic resistance, Reynolds number

ABSTRACT: The experiments were carried out in an apparatus which made it possible to investigate the hydraulic resistance and heat transfer in tubes with heating of water under the conditions q = const, and cooling of water at T = const. Diameter of the tube was 9.6 mm and the wall thickness 0.5 mm. A curve, based on the experimental results, shows the fluctuations in the temperature of the tube wall at different values of the Reynolds number. A second curve exhibits the dependence of the dimensionless amplitudes and frequencies of the fluctuations of the wall temperature on the Reynolds number at different cross sections

Card 1/2

L 29733-66

ACC NR: AP6010201

0

of the tube. It was found that at critical values of the Reynolds number, the duration of the transition in a given cross section is comparable, the nature of the temperature fluctuations becomes symmetrical, and the amplitudes are the greatest. At higher than critical values of the Reynolds number, the amplitudes of the fluctuations of the wall temperature decrease. The fact that the maximum amplitudes of the fluctuations decrease in cross sections of the tube near the inlet is a result of higher Reynolds numbers. With a decrease of four times in the heat load, the maximum values of the amplitudes of the fluctuations at $x/d = 73$ decreased from $\Delta T_{max}/\Delta T_{min}$ = 1.83 to 1.35. Orig. art. has: 5 formulas and 2 figures.

SUB CODE: 20/ SUBM DATE: 03Jan66/ OTH REF: 003

Card 2/2 UC

L 26650-66 EWT(1)/EWP(m)/EWT(m)/ETC(f)/EPF(n)-2/EWG(m)/EWA(d)/T/ETC(m)-6/EWA(1)

ACC NR: AP6007181 WW/DJ SOURCE CODE: UR/0170/66/010/002/0158/0163

AUTHORS: Mikhaylov, A. I.; Kalinin, E. K.; Yarkho, S. A.

ORG: Moscow Aviation Institute im. Sergo Ordzhonikidze (Aviatsionnyy institut)

TITLE: A study of heat exchange and hydraulic resistance of the viscous-gravitational flow of water in horizontal tubes with q_w = const

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 10, no. 2, 1966, 158-163

TOPIC TAGS: viscous flow, Reynolds number, laminar flow, metal tube, heat transfer, Prandtl number, Nusselt number, hydraulic resistance, heat transfer rate

ABSTRACT: The effect of free convection on the viscous flow of water is investigated experimentally in horizontal steel tubes under the condition q_w = const. The experiments are carried out for three Reynolds numbers: 840, 1170, and 1600. The results are plotted as Nusselt number and hydraulic resistance $\bar{B} = \xi Re/(\mu_x/\mu_w)^{0.14}$ versus the product of Grashoff and Prandtl numbers. Empirical equations are obtained to describe the data within 10%. These equations are: for the heat transfer

$$\bar{Nu} = 1{,}64\,(\overline{Pe}\,d/L)^{1/3}(C_1(\overline{Gr}\cdot\overline{Pr})^n),$$

Card 1/2 UDC: 536.24+532.5

$$\begin{cases} C_1 = 1; & n = 0 & \text{at} & \overline{Gr}\cdot\overline{Pr} < 2\cdot10^5, \\ C_1 = 0{,}293; & n = 0{,}1 & \text{at} & 2\cdot10^5 < \overline{Gr}\cdot\overline{Pr} < 10^7, \\ C_1 = 0{,}000464; & n = 0{,}5 & \text{at} & 10^7 < \overline{Gr}\cdot\overline{Pr} < 3\cdot10^7. \end{cases}$$

and for the hydraulic resistance

$$\xi = (64/\overline{Re})\,(\mu_{cr}/\mu_m)^{0{,}14}\,[C_2(\overline{Gr}\cdot\overline{Pr})^n],$$

$$\begin{cases} C_2 = 1; & n = 0 & \text{at} & \overline{Gr}\cdot\overline{Pr} < 2\cdot10^5, \\ C_2 = 0{,}415; & n = 0{,}07 & \text{at} & 2\cdot10^5 < \overline{Gr}\cdot\overline{Pr} < 10^7, \\ C_2 = 0{,}002; & n = 0{,}4 & \text{at} & 10^7 < \overline{Gr}\cdot\overline{Pr} < 3\cdot10^7. \end{cases}$$

It is shown that, other conditions being equal, the average heat transfer rate for the case q_w = const is higher than for the case T_w = const if the product of the Grashoff number and the Prandtl numbers is less than 3×10^6. Orig. art. has: 4 equations and 4 figures.

SUB CODE: 20, 13/ SUBM DATE: 10May65/ ORIG REF: 005/ OTH REF: 002

Card 2/2 FV

L 08136-67 EWT(1)/EWP(m) WW

ACC NR: AP6033531 SOURCE CODE: UR/0170/66/011/004/0426/0431

AUTHOR: Kalinin, E. K.; Yarkho, S. A.

54
B

ORG: Aviation Institute, Moscow (Aviatsionnyy institut)

TITLE: Effect of the Reynolds and Prandtl numbers on the effectiveness of heat transfer intensification in tubes

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 4, 1966, 426-431

TOPIC TAGS: heat transfer, gas flow, Reynolds number, Prandtl number

ABSTRACT: The results are given of an experimental investigation of the effectiveness of heat transfer in tubes in the number ranges $Re = 1.5 \times 10^3 - 10^5$ and $Pr = 0.7 - 50$ by an artificial flow of gases, water, and a water-glycerin mixture. Analysis is given of the heat-transfer mechanism under artificial agitation. Orig. art. has: 4 figures and 1 formula. [Based on authors' abstract]

SUB CODE: 20/ SUBM DATE: 21Jun66/ ORIG REF: 001/ OTH REF: 005/

Card 1/1 nst UDC: 536.25

L 04647-67 EWP(m)/EWT(l)/EWT(m) FDN/WW/JD

ACC NR: AP6024005 SOURCE CODE: UR/0201/66/000/002/0062/0064

AUTHOR: Kalinin, E. K.; Yarkho, S. A.

ORG: Moscow Aviation Institute (Moskovskiy aviatsionnyy institut)

TITLE: Alternation of flow and heat exchange under the conditions of artificial turbulization of flow in tubes

SOURCE: AN BSSR. Vestsi. Seryya fizika-tekhnichnykh navuk, no. 2, 1966, 62-64

TOPIC TAGS: heat exchange, turbulent flow, Reynolds number, turbulent heat transfer

ABSTRACT: This is a continuation of earlier work by the authors (Vestsi AN BSSR, ser. fiz.-mat. navuk, No. 1, 1966), where it was established that the alternation of flow in a smooth tube in the region of critical Reynolds numbers, and also in the entrance sections when $Re > Re_{cr}$, causes alternation of the heat-transfer conditions on the wall of the tube. Since the results of the earlier investigation have shown that most efficient heat transfer is obtained under slight turbulization conditions, the authors have studied the stability of local heat transfer in the near-critical region in tubes with turbulizers. The artificial turbulizers used were annular diaphragms of small height on the internal wall of the tube, produced by externally indenting the tube with a roller. The degree of reduction of the inside diameter of the tube by the diaphragms was 98.3 - 87.5%. The tube was heated with ac. The tests are briefly described. Comparison of the results with the data obtained for a smooth tube indicates that in the tube with turbulizer the temperature pulsations are pro-

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L 04647-67

ACC NR: AP6024005

duced at lower Reynolds numbers than in a smooth tube. The amplitudes of the oscillations of the wall temperature in such tubes is larger than in smooth tubes. The range of Reynolds numbers in which pulsation takes place is much smaller than in a smooth tube. The shift and decrease of the maxima of the pulsations of the characteristics on approaching the inlet to the tube is due to the character of the variation of the alternation coefficient, as analyzed in detail in the earlier paper. Orig. art. has: 2 figures and 2 formulas.

SUB CODE: 20, 13/ SUBM DATE: 03Mar66/ ORIG REF: 001/ OTH REF: 002

kh

Card 2/2

KURILOV, G.V., inzh.; VASYANOVICH, I.F., inzh.; YARKHO, V.I., inzh.; MORGUNOV, V.N., inzh.; BALITSKIY, S.A., kand. tekhn. nauk

Drying rigid mineral wool plates with bitumen-kaolin binder. (MIRA 18:12)
Stroi. mat. 11 no. 12:12-14 D '65.

OSINTSEV, A.S., prof., doktor ekonom. nauk; YARKOV, V.V., dotsent

Determining the degree of complexity of mechanization and automation of production and the level of work mechanization in metallurgical combines. Sbor. nauch. trud. Ural. politekh. inst. no.122:275-285 '61. (MIRA 17:12)

PINTUSOV, I.M.; YARKHO, Ye. A., inzhener, retsenzent; VOLKOV, A.A. inzhener, redaktor; SAFSAGANSKIY, T.D., redaktor; POPOLOV, Ya.N. redaktor; UVAROVA, A.F., tekhnicheskiy redaktor.

[Organization and planning of production in metallic construction shops] Organizatsiia i planirovanie proizvodstva v tsekhakh metallicheskikh konstruktsii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 87 p. (MLRA 8:10)
(Machinery industry)

YARKHO, Ye. A.

KOCHINEV, A.S., inzhener; YARKHO, Ye.A., inzhener.

Mechanizing manual operations in small-lot production machine shops. Vest.mash. 37 no.6:69-75 Je '57. (MLRA 10:7)
(Machinery industry)

SOV/122-58-6-9/37

AUTHORS: Kochinev, A.S. and Yarkho, Ye.A., Engineers

TITLE: A Unit-type Construction Boring Mill for Gearbox Housings (Agregatnaya ustanovka dlya rastochki korpusov reduktorov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 6, pp 28-32 (USSR)

ABSTRACT: Boring mills built up from single units are described with photographs and cross-sectional drawings. One boring mill each performs the rough boring and finish boring operations, including the turning of an undercut groove. The finish boring and groove turning machine is shown in detail with cross-sections of the hydraulically operated clamping and lifting fixtures, the boring bar and spindle and the control mechanism. Three spindles work simultaneously and accomplish the machining operation in 30 minutes, including the loading and unloading times in gearbox housings with 6 holes between 110 and 180 mm diameter on 3 centre lines. There are 6 figures.

Card 1/1 1. Machine tools--Construction 2. Machine tools--Applications 3. Machine tools--Performance

KOCHINEV, A.S., inzh.; YARKO, Ye. A., inzh.

Unit for boring reduction-gear casings. Vest. mash. 38 no. 6:28-32 Je '58. (MIRA 11:7)

(Drilling and boring machinery)

YARKHO, Ye.A.

Glass reinforced plastics and technological processes in their manufacturing. Mashinostroitel' no.7:35-36 '61. (MIRA 14:7)
(Glass reinforced plastics)

YARKHO, Ye.A., inzh.

Standardization of technological processes in the manufacture of machinery. Vest.mashinostr. 42 no.8:50-59 Ag '62. (MIRA 15:8)

(Machinery industry)

KHODAKOVSKIY, N.S.; YERKHO, Ye.A., inzh., retsenzent; IZAKOV, N.R., kand. tekhn. nauk, dots., red.

[Reduction of auxiliary time in the heavy machinery industry] Sokrashchenie vspomogatel'nogo vremeni v tiazhelom mashinostroenii. Moskva, Mashinostroenie, 1964. 95 p. (MIRA 18:1)

IVANOV, Yu.M.; YARKHO, Ye.A., inzh., retsenzent; KAPUSTIN, N.M., kand. tekhn. nauk, red.

[Plastic technological equipment for machine tools] Plastmassovaia tekhnologicheskaia osnastka k stankam. Moskva, Mashinostroenie, 1964. 157 p. (MIRA 18:3)

SOV/137-59-5-9632

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 22 (USSR)

AUTHORS: Sosnin, V.V., Yarkho, Ye.N., Travin, O.V.

TITLE: The Effect of Slag Mixing on the Desulfurization Rate of Cast Iron

PERIODICAL: V sb.: Metallurgiya i metallovedeniye, Moscow, AS USSR, 1958, pp 11 - 15

ABSTRACT: The authors investigated the effect of slag mixing on kinetics of S transition from cast iron into slag. A graphite crucible divided into four cells contained cast iron and slag. The slag in three compartments was stirred with graphite mixers at different speeds. During the experiment cast iron samples were taken off the compartments through communicating holes. The initial cast iron contained 0.3% S with admixture of S^{35}. Cast iron samples were analyzed by S^{35}. It was established that S transition from cast iron into slag was considerably accelerated

Card 1/2

SOV/137-59-5-9632

The Effect of Slag Mixing on the Desulfurization Rate of Cast Iron

with higher mixing speeds at elevated temperatures. The cross section of the cast-iron slag system, obtained by the self-radiography method, proved the presence of high S concentrations ($\sim$ 6%) in the slag at the interface with the metal; this indicates the presence of an equilibrium of this portion of the slag with the cast iron.

I.K.

Card 2/2

5(4) SOV/20-122-4-27/57

AUTHORS: Kozhevnikov, I. Yu., Travin, O. V., Yarkho, Ye. N.

TITLE: The Influence of CaF_2 on the Distribution of Phosphorus Among Liquid Iron and Ferrous-Calcareous Slags (Vliyaniye CaF_2 na raspredeleniye fosfora mezhdu zhidkim zhelezom i zhelezisto-izvestkovymi shlakami)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 4, pp 635-638 (USSR)

ABSTRACT: Calcium fluoride in a melt of oxides gives a singly charged anion F^- (R_{F^-} = 1,33 Å) the radius of which differs hardly from the radius of the oxygen ion (R_O^{2-} = 1,32 Å). Thus, there are 2 elementary anions of equal dimensions, but of different charge in the slags of the system CaO-FeO-CaF_2. The influence of F^- on the distribution of phosphorus, therefore, is in principle different from the influence of the complex anions SiO_4^{4-}, PO_4^{3-}, and AlO_2^-.

Card 1/3

The Influence of CaF_2 on the Distribution of Phosphorus Among Liquid Iron and Ferrous-Calcareous Slags

In this paper, the method of successive saturation was applied. The idea of this method consists of the saturation of iron with radioactive phosphorus P^{32} (which was previously introduced into the slag) at a constant temperature. The method of successive saturation permits 1) the establishing of isothermic conditions for the system metal-slag, 2) a reliable fixation of the equilibrium state, 3) the determination of the temperature dependence of the distribution index of phosphorus L_P for a slag of constant composition. The data for the system $CaO-FeO-CaF_2$ can be compared with the values of the thermodynamic functions of the dephosphorization of iron by ferrous-calcareous slags and in this way, the influence of CaF_2 can be found in a pure form. The replacing of CaO by CaF_2 diminishes the indices of the phosphorus distribution. The introduction of CaF_2 into ferrous-calcareous slags (even at low concentrations of P_2O_5) causes the formation of stable ionic groupings the composition of which corresponds to the chemical compound

The Influence of CaF_2 on the Distribution of Phosphorus Among Liquid Iron and Ferrous-Calcareous Slags

(fluor-apatite). According to the above-discussed data, the theory of the real metallurgic slags must rely on the following fact: Oxides of stable ion groupings the composition of which corresponds to definite chemical compounds are formed in the oxide melts. The use of CaF_2 in the treatment of phosphoric iron is not advantageous. There are 3 figures, 1 table, and 13 references, 11 of which are Soviet.

PRESENTED: May 24, 1958, by G. V. Kurdyumov, Academician

SUBMITTED: May 24, 1958

YARKHO, Ye.N.; SPEKTOR, A.N.

Direct recovery of iron in capitalist countries. Biul.tekh.-ekon. inform. no.9:86-91 '61. (MIRA 14:9)
(Iron--Metallurgy)

POKHVISNEV, A.N., doktor tekhn.nauk, prof.; SPEKTOR, A.N., inzh.; YARKHO, Ye.N., inzh.

Calculating the charge for the production of partly reduced (metallized) ore and coal nodules. Stal' 22 no.2:106-109 F '62. (MIRA 15:2)

1. Moskovskiy institut stali i Gosudarstvennyy soyuznyy institut po proyektirovaniyu metallurgicheskikh zavodov.
(Ore dressing)

GUBIN, Georgiy Viktorovich; KUCHER, Aleksandr Mikhaylovich; BYKOV, Gennadiy Vasil'yevich; IZMALKOV, Aleksandr Zakharovich; YARKHO, Ye.N., otv. red.; KACHALKINA, Z.I., red. izd-va; SABITOV, A., tekhn. red.

[Roaster of ores]Obzhigal'shchik rud. Moskva, Gosgortekh-izdat, 1962. 68 p. (MIRA 15:10)
(Ore dressing)

YARKHO, Ye.N.; SPEKTOR, A.N.

Nodulizing of ores and concentrates in capitalist countries. Biul.-tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.8:85-89 '62. (MIRA 15:7)

(Ore dressing)

FOKIN, Anatoliy Nikolayevich, prof.; KOZHEVNIKOV, Igor' Yulianovich; SPEKTOR, Aleksandr Mutovich; YAKHO, Yevgeniy Naumovich

[Iron production in foreign countries without the use of blast furnaces] Vnedomennoe poluchenie zheleza za rubezhom. [By] A.N.Fokin i dr. Moskva, Izd-vo Metallurgiia, 1964. 367 p. (MIRA 17:7)

CHUKHANOV, Z.F.; KONDAKOV, V.V.; KALYUZHNYY, V.V.; RYZHONKOV, D.I.; SPEKTOR, A.N.; STROKOVSKIY, L. Kh. KHORZHEMBO, ..L.; YARKHO, Ye.N. KUNAKOV, N. Ye.

Pilot plant for the study and application of the hear regenerating direct process of cast iron and steel production. Ispol'. tverd. topl., ser. maz. i gaza no. 5:182-192 '64 (MIRA 19:2)

Cand. Tech. Sci.

YARKHOV, A. A., Captain-Engineer

Dissertat on: "Approximate Methods for Calculation of a Boundary Layer with Suction."

27 Apr. 49

Military Air Engineering Academy

imeni Professor N. Ye. Zhukovskiy

SO Vechernyaya Moskva
Sum 71

YARKHOV, I.S.

CARD 1 / 2 PA - 1690

SUBJECT USSR / PHYSICS
AUTHOR REJTLINGER,S.A., MASLENNIKOVA,A.A., JARCHOW,I.S.
TITLE The Gas-Penetrability of Polyorganosiloxan Rubber.
PERIODICAL Zurn.techn.fis, fasc.11, 26, 2553-2557 (1956)
Issued: 12 / 1956

Here the dependence of this type of rubber on composition, on the vulcanizing method, and on temperature is studied.

Investigation method: Dimethyl polysiloxane (caoutchouc SKT) served as initial polymer. To 100 units of weight of this caoutchouc 3 units of benzoyl peroxide and 5 units of zinc oxide are added for the purpose of vulcanization. In some cases white soot or titanium dioxide was introduced as filling material. The device for the determination of gas penetrability consisted of 2 steel chambers between which the plate-shaped samples to be examined were pressed. Before measuring, both chambers were evacuated to 10^{-3} mm torr, after which the upper chamber was connected with the gas. The gas diffuses through the plate to be examined into the lower chamber which is connected with a mercury manometer.

Test results: The values found for the constant P of gas penetrability, for the diffusion constant D, and for the solubility constant σ are shown together in a table. Investigations extended to unfilled vulcanization products of dimethylpolysiloxane and natural caoutchouc. The rubbers examined have a very high degree of gas penetrability which by far exceeds that of other molecular compounds. The increase of the gas penetrability of dimethylpolysiloxane as against that of natural caoutchouc is a consequence of the considerable in-

Zurn.techn.fis,26,fasc.11, 2553-2557 (1956) CARD 2 / 2 PA - 1690

crease of the diffusion velocity of gases. Vulcanization in an oven or a thermostat diminishes gas penetrability considerably, but vulcanization in a press entails no considerable modification of gas penetrability. The gas penetrability of dimethylpolysiloxanes can be somewhat reduced by the introduction of filling materials. Active filling materials (white soot) are more effective than inactive ones (titanium dioxide). With rising temperature the penetrability for H_2, N_2 O_2 increases somewhat, but it diminishes for CO_2. From the data obtained also the activation energy of the diffusin and the heat of solution of nitrogen in the polymer werecomputed.

Discussion of results: In some case the polyorganosiloxanes differ considerably from the caoutchoucs of the carbon type because of their particular molecular structure. The fact that specific weights are relatively low in spite of the presence of heavy Si-molecules is indicative of a loose packing of the molecules. They probably have a spiral structure. Penetration of gas occurs by a diffusionlike transfer of the molecularly dissolved gas but not by flows of the KNUDSEN or POISEUILLE type.

INSTITUTION:

SPEKTOR, A.N.; YARKHOV, Ye.N.

Efficient design of blast furnace hearths and hearth bottoms. Metallurg 8 no.5:3-4 My '63. (MIRA 16:7)

(Blast furnaces—Design and construction)

YARKHOVA, M. P.

Rozenfel'd, I. M. and Yarkhova, M. P. "Some features of the pathology of (lor)-organs in war invalids," Trudy Leningr. obl. gospitalya dlya lecheniya invalidov Otechestv. voyny, Leningrad, 1946, p. 167-78

SO: U-3050, 16 June 53, (Letopsis 'Zhurnal 'nykh Statey, No. 5, 1949)

YARKIN, A.A., inzh.

Testing D-492 and D-493 bulldozers. Mekh. stroi. 18 no.5:11-13 My '61. (MIRA 14:7)

(Bulldozers—Testing)

YARKIN, A.A., gornyy inzh.-elektrik

Static calculation of a two-panel, single-stage, side disk of the moving body of a multirope hoist cage. Gor. zhur. no.9: 73-74 S '62. (MIRA 15:9)

1. Institut Krivbassproyekt.
(Krivoy Rog Basin—Mine hoisting)

DEYNEGO, Yu.B., kand. tekhn. nauk; PLESHKOV, D.I., kand. tekhn. nauk; SKOKAN, A.I., inzh.; STRAZH, V.I., inzh.; YAPKIN, A.A., inzh.

Self-propelled construction and road machinery. Stroi. i dor. mash. 9 no.8:10-14 Ag '64 (MIRA 18:1)

SERGEYEV, M.P., doktor tekhn. nauk; KAZANTSEV, G.M., inzh.; YANOVSKIY, E.V., inzh.; YAGODOV, O.P., inzh.; YARKIN, A.A., inzh.

Investigating the operating tension of the carrying system of the S-100GP tractor with the D-493 bulldozer. Stroi. i dor. mash. 10 no.9:18-20 S '65. (MIRA 18:10)

YARKIN, A.A., inzh.

Experimental study of the parameters of the profile of the nonreversible moldboard of a bulldozer. Stroi. i dor.mash. 9 no.10:8-10 O '64. (MIRA 18:1)

YARKIN, I.G.

Methods for obtaining pressed solutions from rocks. *Pochvovedenie* no.5:68-71 My '65. (MIRA 18:5)

1. Institut merzlotovedeniya imeni Obrucheva, Moskva.

L 36997-66 EWP(j)/EWT(m)/T/EWP(e) RM/IG/WW/DJ/WE

ACC NR: AT6023746 SOURCE CODE: UR/3149/66/000/003/0080/0088

AUTHOR: Yarin, L. P.

75
B+1

ORG: none

TITLE: Calculation of diffusional combustion in the boundary layer of a high velocity stream

SOURCE: Alma-Ata. Kazakhskiy nauchno-issledovatel'skiy institut energetiki. Problemy teploenergetiki i prikladnoy teplofiziki, no. 3, 1966, 80-88

TOPIC TAGS: combustion, diffusional combustion, diffusion flame, air breathing propulsion, combustion rate, gas diffusion, boundary layer, gas flow, flow velocity

ABSTRACT: An analysis was made of the diffusional combustion process which takes place in the boundary layer of a high velocity combustible gas stream discharging into a stagnant oxidizer medium. It was assumed that the reaction rate is infinitely high and that mixing is the rate controlling process. Energy and mass transfer equations were solved for the inner and outer regions, and the solutions were joined to obtain equations for the combustion zone. Plots were obtained of the ratio of the stagnation temperature in the combustion zone to the stagnation temperature of the jet as a function of the Mach number. In

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ACC NR: AT6023746

addition, the temperature profiles in the jet cross section were plotted as a function of the Mach number. The plots showed that at high flow velocities (M = 10), the maximum temperature may be located outside the combustion zone. This is especially true of low calorific mixtures. As the flow velocity increases, the chemical energy liberated by combustion decreases relative to the kinetic energy of the incident flow. Therefore, at high flow velocities, the combustion process cannot substantially affect the stagnation temperature profile. [PV]
Orig. art. has: 19 formulas and 4 figures.

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 007/ ATD PRESS: 5135

Card 2/2

ALESHIN, Ye.P., kand. biol. nauk; YARKIN, S.A.; SEMENENKO, A.N.; KIRICHENKO, K.S., kand. sel'khoz. nauk; CHUMIKOV, I.I.; SAPELKIN, V.K.; RODIONOV, M.S.; RADIN, Yu.P.; FEDOROVA, Yu.A., red.; SAYTANIDI, L.D., tekhn. red.

[Growing rice on irrigated lands] Vozdelyvanie risa na oroshaemykh zemliakh. Moskva, Izd-vo M-va sel'khoz. RSFSR, 1963. 101 p. (MIRA 16:12)

(Rice)

Yarkin, V.

AID P - 3307

Subject : USSR/Aeronautics

Card 1/1 Pub. 135 - 13/20

Author : Yarkin, V., Maj. Eng.

Title : Operation of a radar station at low temperatures

Periodical : Vest. vozd. flota, 11, 62-65, N 1955

Abstract : The author discusses in general terms the difficulties of cold weather operation of radar stations and gives some practical advice for its improvement.

Institution : None

Submitted : No date

YARKIN, V.F.

AID P - 5434

Subject : USSR/Aeronautics - maintenance

Card 1/1 Pub. 135 - 11/31

Author : Yarkin, V. F., Eng.-Lt.Col.

Title : Tuning the airborne radar apparatus

Periodical : Vest. vozd. flota, 1, 53-56, Ja 1957

Abstract : A detailed description of tuning the airborne radar stations is given in this article. The article is of informative value.

Institution : None

Submitted : No date

YARKIN, V. I.

"The Stratigraphy and Fauna of Mollusks of the Lower Paleogene in the Turgay Depression and Northern Priaral'ye." Cand Geol-Min Sci, Leningrad State U, Leningrad, 1954. (RZhGeol, Feb 55)

SO: Sum. No. 631, 26 ug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

Yar Kin. V. I.

20-2-52/60

AUTHOR: Yarkin, V. I.

TITLE: Analogues of the Kanevskiy Stage of the Ukraine Observed in the Obshchiy Syrt Regions (Analogi kanevskogo yarusa Ukrainy v rayonakh Obshchego Syrta)

PERIODICAL: Doklady AN SSSR, 1958, Vol. 118, Nr 2, pp. 387 - 388 (USSR)

ABSTRACT: The mollusk fauna of quartzite-like sandstones between the stations Ozinki and Shipovo on the Orenburg-railway represents the topic of the present report. These sandstones are non-throughgoing intermediate layers in the mass of quartz-sand which are transgressively deposited here on the washed-out surface of the box-like syncline of the Syzranskiy stage. The scarce mollusk-determinations (reference 4) from here did not contradict the classification of the sand-layers with the Saratovskiy stage (reference 4). Based on this fact the opinion on the Paleocene age of these formations came to stay in publications. In recent years Zhuteyev (references 8, 9) classified these sediments with the Middle-Eocene. As regards facies they are supposed to be analogous to the sandy-clayey sediments occurring east of the Ural river (basin of the rivers Solyanka and Uil, littoral region of the lake Chelkar); Middle-Eocene nummulites were frequently found in these latter (references 6-9). For all

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Analogues of the Kanevskiy Stage of the Ukraine Observed in the Obshchiy Syrt Regions

these reasons a revision of the earlier mollusk-determinations from Ozinka-Shipovo was indispensable. The result were 31 species of mollusks. This complex is highly different from that of the Saratovskiy stage of the Povolzh'ye (Volga region) references 1, 5). It lacks such widely spread, thermophile Paleocene species of the last-mentioned region as Cucullea, large Crassatella, Cardita, Turritella, Volutilites, Actaeon, and many others. Only 4 species are common to both complexes. At the same time the complex from Ozinka-Shipovo is extremely closely related (reference 3) to that of the Kanevskiy stage of the Ukraine (basin of the Desna). The facies of this fauna is much more cold-loving than that of the Paleocene complex. From the 31 species determined in Ozinka-Shipovo 22 forms are common with the Kanevskiy stage. The determination of the Lower-Eocene age of the sand-deposits permits a different approach to the problem of their classification with the corresponding formations of the Povolzh'ye (Volga region). The rocks of the Proleyskaya and Tsaritzinskaya suites are to be considered as age-analogues of the sand deposits of the Obshchiy Syrt, which contain the above-mentioned mollusk complex. Until recently faunally characterized Lower-Eocene deposits within the domain of the Russian platform were only known in the Ukraine. In 1956 the Eocene com-

Card 2/3 plex of the fossil mollusks of the Tsaritzin suite of the Povolzh'ye

Analogues of the Kanevskiy Stage of the Ukraine Observed in the Obshchiy Syrt Regions

(Volga region) was studied (reference 2). It may now be talked about a much more far-reaching Lower-Eocene transgression which comprised the entire Ukraine, Lower-Povolzh'ye to farther east into the Obshchiy syrt, apparently as far as the Mugodzhary mountains. The transgression was preceded by a considerable interruption of sedimentation. This transgression brought with it quite a new complex of mollusks which had a boreal nature. As well the geographic distribution of the deposits on the Russian platform as the Lower-Eocene fauna are sufficiently sharply different from the Paleocene--fauna and from the distribution of sediments at that time. This again emphasizes a complete independence of the Paleocene as a subdivision of the Paleogenic system. There are 9 references, all of which are Slavic.

ASSOCIATION: All-Union Scientific Geological Research Institute (Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut)

PRESENTED: March 25, 1957, by D. V. Nalivkin, Academician

SUBMITTED: March 19, 1957
AVAILABLE: Library of Congress

Card 3/3

KOROBKOV, I.A.; MIRONOVA, L.V.; OVECHKIN, N.K.; YARKIN, V.I.

"Stratigraphy and fauna of lower Tertiary sediments in the Ukraine" by M.N.Kliushnikov. Reviewed by I.A.Korobkov and others. Sov.geol. 2 no.1:150-152 Ja '59. (MIRA 12:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskiy institut.
(Ukraine--Geology, Stratigraphic) (Ukraine--Paleontology)
(Kliushnikov, M.N.)

YARKIN, V.I.

New data on mollusks in lower Saratov strata of the Volga Upland. Inform. sbor. VSEGEI no.10:69-75 '59. (MIRA13:12)
(Volga Upland--Mollusks, Fossil)

YARKIN, V.I.; MAKAROVA, R.K.

A case of the complete identity of complexes of mollusk species in the upper Eocene of the Caspian Lowland and central Kyzyl Kum. Inform.sbor. VSEGEI no.43:79-82 '61. (MIRA 14:12)
(Caspian Lowland--Mollusks, Fossil)
(Kyzyl Kum--Mollusks, Fossil)

YARKIN, V.I.

Mollusks of the Ozinki formations of the southern slopes of Obshchiy Syrt. Trudy VSEGEI 82:215-370 '62.

(MIRA 17:11)

YARKINA A. F.

ZAIETSKIY, V.N.; SHABALINA, N.S.; YARKINA, A.F.

Automatic apparatus for deaeration and pasteurization of fruit and berry juices. Kons. i ov. prom. 13 no.2:14-17 F '58. (MIRA 11:2)

1. Moldavskiy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti.

(Food industry--Equipment and supplies)

YARKINA, A. N.

"Selection of Spring Wheat for Resistance to Fungus Diseases," Sotsialisticheskoe Zernovoe Khoziaistvo, vol. 16, no. 2-3, 1946, pp. 35-44. 59.0 So72

So: SIRA Si 90-53, 15 Dec. 1953

YARKINA, B.I.

OKORKOV, S.D.; GOLYNKO-VOL'FSON, S.L.; SHEVELEVA, B.I.; YARKINA, B.I.

Mineralizing effect of certain native minerals and industrial waste products in the process of burning portland cement clinkers. TSement 24 no.1:16-18 Ja-Fe '58. (MIRA 11:4)
(Portland cement)

L 23080-66 EWT(1) RO

ACC NR: AP6005049 SOURCE CODE: UR/0025/65/000/010/0146/0146

AUTHOR: Yarina, L. (Physician)

ORG: Tomsk Polytechnic Institute (Tomskiy politekhnicheskiy institut)

TITLE: A new drug: "Benzonal"

SOURCE: Nauka i zhizn', no. 10, 1965, 146

TOPIC TAGS: health, medicine, drug

ABSTRACT: A brief report is given on benzonal prepared by the research laboratory of medicinal synthesis headed by Professor P. N. Kulev (Tomsk Polytechnic Institute). Benzonal is a derivative of phenobarbitol-luminal and represents a crystalline white powder of a peculiar odor. It is antispasmodic medicine and can be used for treatment of epilepsy. The drug is slow-acting and the treatment is based on the gradual increase of dosage. (Its toxicity is low). In contrast to phenobarbitol, no headache, drowsiness or weakness is

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ACC NR: AP6005049

usually observed. In general, it acts as a tranquilizer. If needed, the appearance of side effects can be eliminated by diminishing the dose rate. The doses prescribed by doctors can attain an amount of 0.75 to 0.9 gram per day.

SUB CODE: 06 / SUBM DATE: None / ORIG REF: 000 / OTH REF: 000

Card 2/2 ULR

YARKINA, T.G.

Bioelectric activity of the muscles in supratentorial tumors of the brain of varying histostructure. Probl.neirokhir. 4:123-129 '59.
(MIRA 13:11)

(ELECTROPHYSIOLOGY)
(MUSCLE)
(BRAIN--TUMORS)

YARKINA, T.E.

OKOROKOV, S.D., kandidat tekhnicheskikh nauk; GOLYNKO-VOL'FSON, S.L., kandidat tekhnicheskikh nauk; SHEVELEVA, B.I., mladshiy nauchnyy sotrudnik; YARKINA, T.E., inzhener.

Comparative study of certain salt groups as possible mineralizers in burning portland cement clinkers. TSement 23 no.3:5-11 My-Je '57. (MLRA 10:7)

(Cement) (Sulfates)

OKOROKOV, S.D.; VOLKONSKIY, B.V.; YARKINA, T.N.

Characteristics of mineral formation in the synthesis of calcium aluminates in the presence of mineralizers containing flourine. TSement 28 no.4:7-9 Jl-Ag '62. (MIRA 15:7)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta i Gosudarstvennyy institut proyektirovaniya predpriyatiy i po nauchno-issledovatel'skim rabotam tsementnoy promyshlennosti.
(Calcium aluminates)
(Cement clinkers)

OKOROKOV, S.D.; GOLYNKO-VOL'FSON, S.L.; YARKINA, T.N.; CHEPIK, R.A.

Interaction between calcium aluminate and gypsum at high temperature. Zhur.prikl.khim. 35 no.2:256-263 F '62. (MIRA 15:2)

(Calcium aluminate) (Gypsum)

OKOROKOV, S.D.; GOLYNKO-VOL'FSON, S.L.; YARKINA, T.N.; CHEPIK, R.A.

Characteristics of the formation of calcium aluminates during the firing of charges containing gypsum. Zhur.prikl.khim. 35 no.11: 2554-2558 N '62. (MIRA 15:12)
(Calcium aluminate) (Gypsum)

OKOROKOV, S.D.; GOLYNKO-VOL'FSON, S.L.; YARKINA, T.N.

Effect of fluorides on mineral formation in the system $CaO-Al_2O_3-SiO_2$.
TSement 29 no.1:7-9 Ja-F '63. (MIRA 16:2)

1. Tekhnologicheskiy institut imeni Lensoveta.
(Cement clinkers) (Flourides)

OKOROKOV, S.D.; GOLYNKO-VOL'FSON, S.L.; YARKINA, T.N.

Possibility of directed change in the course of mineral formation in the system CaO - Al_2O_3 - SiO_2. Dokl. AN SSSR 150 no.5:1047-1050 Je '63. (MIRA 16:8)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.
(Minerals) (Portland cement)

OKOROKOV, S.D., prof.; GOLYNKO-VOL'FSON, kand. tekhn. nauk, dotsent; YARKINA, T.N., inzh.

Effect of mineralizers containing fluorine on the stability and formation of the aluminoferrite phase of portland cement clinkers. Trudy NIITSement no.18:87-96 '63. (MIRA 18:9)

Yakkina

SKRYPNIK, Ivan Pavlovich; CHERTOK, Boris Yefimovich; YAKKINA, V.T., dots., kand. tekhn. nauk, retsenzent; SIVAY, A.V., dots., red.; SOROKA, M.S., red. izd-va.

[Technology of metals] Tekhnologiia metallov. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. 350 p. (MIRA 11:7)
(Metals)

S/123/62/000/019/002/010
A006/A101

AUTHORS: Gushchin L. K., Dombrovskaya, Ye. V., Zemskov, O. V., Parfenov, A. K., Yarkina, V. T.

TITLE: Gas nitriding with ultrasonic effect

PERIODICAL: Referativnyy zhurnal, Mashinostroyenie, no. 19, 1962, 25, abstract 19B134 ("Nauchn. zap. Odessk. politekhn. in-t", 1961, 35, 25 - 31)

TEXT: The authors studied the effect of ultrasonic waves upon the depth of the layer, structure, hardness on the surface, and distribution of hardness across the layer in gas nitriding at 500 and 550°C, 60 mm water col. gas pressure at a 40% degree of gas dissociation, and holding for 2, 4, 6, 8, 10 and 15 hours. The investigations were made with improved 35 XIOA (35KhYuA) steel specimens with HCR=28 - 30. For comparison the process was conducted in two ways: with ultrasonic oscillations of 18 - 20 kilocycle frequency and without them. An analysis of experimental results, obtained by investigating the structure, layer depth, determination of hardness according to Vikkers, and microhardness on the surface and across the layer, has shown that ultrasonic waves

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S/123/62/000/019/002/010
A006/A101

Gas nitriding with ultrasonic effect

increase the hardness across the layer, penetration depth of nitrogen, and microhardness of the base zone of the nitrided layer. The time of nitriding process with ultrasound is reduced 1.5 times as compared with nitriding without ultrasonic effect. There are 5 figures.

T. Kislyakova

[Abstracter's note: Complete translation]

Card 2/2

S/129/61/000/003/007/011
E073/E335

18.7530 1145 also 1454, 1573

AUTHORS: Zemskov, G. V., Gushchin, L.K., Dombrovskaya, Ye.V., Parfenov, A.K. and Yarkina, V.T.

TITLE: Nitriding of Steel Under the Effect of Ultrasonics

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No. 3, pp. 40-42

TEXT: The authors studied the nitriding of steel under the effect of ultrasonics in gaseous and liquid media. For the gas nitriding, steel 35XIOH (35KhYuA) was used in the heat-treated state (H_{RC} = 28-30). Prior to nitriding the specimens were carefully degreased with alcohol. The ammonia was always fed into the furnace at 200 °C to prevent excitation. The degree of dissociation of the ammonia during nitriding (at 500 - 550 °C) equalled 40%. At the termination of the process the specimens were cooled to 200°C in ammonia. The process was carried out with and without ultrasonics. Liquid nitriding was in a salt bath (calcium chloride 48%, barium chloride 31%, sodium chloride 21%) and ammonia was placed into it. The process was

Nitriding of Steel ....

carried out at 550 - 560 °C with a holding time of 9 hours and an ammonia pressure of 330 - 360 mm oil column. The ultrasonics were produced by a 2.5 kW 18-35 kc/s tube oscillator and they were transmitted to the bath by a "Permendur" magnetostriction vibrator. The results were evaluated by measuring the hardness and the microhardness of the surface. Fig. 1 shows the influence of ultrasonics on the change of microhardness along the cross-section of a layer nitrided at 550 °C, H versus distance from the surface (Curves 1 - without ultrasonics; Curve 2 - with ultrasonics). The plots, Fig. 1, from left to right, related to the nitriding times of 2, 4, 6, 8, 10 and 15 hours, respectively. The ultrasonics brought about an increase in hardness and depth of penetration of the nitrogen, ensuring a stable increase in the microhardness in the basic zone of the nitrided layer. For process durations of 6 hours and more, the microhardness of specimens treated with ultrasonics was appreciably higher than that of those not treated. The use of ultrasonics enables reducing the duration of the process by a factor of 1.5. The change in the

Nitriding of Steel ....

microhardness brought about by liquid nitriding using ultrasonics (Curve 1) and without using ultrasonics (Curve 2) is plotted in Fig. 3 (hardness, H_{μ} versus distance from the surface). As a result of ultrasonics treatment the depth and hardness of the diffusion layer are increased.
There are 3 figures.

ASSOCIATION: Odesskiy politekhnicheskiy institut
(Odessa Polytechnical Institute)

Card 3/3

S/194/62/000/012/060/101
D295/D308

AUTHORS: Zemskov, G. V., Dombrovskaya, Ye. V., Yarkina, V. T., Gushchin, L. K. and Parfenov, A. K.

TITLE: The influence of ultrasound on the nitriding process

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1962, 15, abstract 12-5-29 sh (Nauchn. zap. Odessk. politekhn. in-t, 35, 1961, 90-96)

TEXT: Experiments were carried out to study liquid nitriding in a salt bath through which ammonia was passed. Samples of 35X10A (35KhYuA) steel cylinders of 20 mm diameter and 10 mm height were subjected to nitriding. The temperature of the process was 550°C and the frequency of ultrasonic irradiation 18 - 35 kc/s. Gaseous nitriding experiments were carried out in an electric oven with ammonia at a pressure of 45 - 55 mm oil column; the samples were screwed into a concentrator. The data obtained show that the use of ultrasonic treatment enables the duration of the process to be reduced by a factor of 1.5. The hardness of the nitrided layer and

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its depth are increased. A comparison of liquid and gaseous nitriding shows that the latter is more promising from the viewpoint of the quaility of the hardened layer. 9 references. [Abstracter's note: Complete translation.]

S/810/62/000/000/006/013

AUTHORS: Zemskov, G. V., Gushchin, L. K., Dombrovskaya, Ye. V., Parfenov, A. K., Yarkina, V. T.

TITLE: The nitriding of steel under ultrasonic action

SOURCE: Metallovedeniye i termicheskaya obrabotka; materialy konferentsii po metallovedeniyu i termicheskoy obrabotke, sost. v g. Odesse v 1960 g. Moscow, Metallurgizdat, 1962, 211-214.

TEXT: The paper reports the results of an experimental investigation intended to clarify the generally contradictory statements of various antecedent authors, both Soviet and Western, on the existence of presumably accelerating effect of ultrasonic (US) vibrations (V) on solid liquid carburization and nitriding. Specimens of steel 35XЮA (35KhYuA), 60 mm long, were threaded at one end for attachment to the test equipment. The steel had been previously refined, and a sorbitic structure with R_C 28-30 had been obtained. Ammonia (AM) was fed into the furnace, beginning at 200°. At nitriding temperature (T), the AM was about 40% dissociated, at a pressure of 60 mm oil column. After holding, the specimen was cooled to 200° in the furnace in an AM medium. Nitriding T was 500 and 550°, holding time 2, 4, 6, 8, 10, and 15 hrs with and without US exposure. Liquid

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nitriding was done in a bath containing 31% $BaCl_2$, 48% $CaCl_2$, and 21% NaCl, through which AM was passed and into which US vibrations were entered by means of a concentrator. Liquid-nitriding T was 550-560°, holding time 9 hrs at an ammonia pressure of 330-360 mm oil column. Intensive "boiling" of the bath was observed. An electron-tube generator with an output power of 2.5 kw and a frequency range from 18-35 kcps was employed as a source of US V. Graphed microhardness cross-sections across the layer affected show the favorable effect of US V in increasing hardness, increasing the depth of the penetration of N, and also in the attainment of a more uniform microhardness throughout the nitrided layer, especially for holding times in excess of 6 hrs. Application of US V permits a 40% reduction in process duration. The favorable effect of US V is attributed to the periodic change of the lattice parameters and the increase in the mean-square amplitude in the thermal oscillations of the ions in the lattice points of the crystalline lattice as a result of the local increase in temperature. In interstitial solid solutions the imposition of US V renders the phase coincidence between the N ions and the nearest Fe ions more likely and more frequent, and hence expedites the nitriding process. The US V also eliminate the reaction products from the metal surface and assure a continuous supply of fresh portions of gas, which also increases the time rate of the chemical processes and the dissolution process, and, hence, increases the N concentration in the surface layer. The US formation of ultra-

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microscopic pores in the metal also facilitates the adsorption accompanying the diffusion of surface-active elements. There are 4 figures and 7 references (1 Russian-language Soviet, 3 French, 2 German, and 1 English-language: Heedeman, E., J. Acoust. Soc. Am., v.26, no.5, 1954, 831-842).

ASSOCIATION: Odesskiy politekhnicheskiy institut (Odessa Polytechnical Institute).

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ACCESSION NR: AP4010077 S/0129/64/000/001/0052/0055

AUTHOR: Kemskov, G. V.; Dombrovskaya, Ye. V.; Yarkina, V. T.; Gushchin, L. K.; Parfenov, A. K.

TITLE: Intensified nitration by the use of ultrasonics

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1964, 52-55

TOPIC TAGS: gas nitration, steel nitration, microhardness, ultrasonic reflection, ultrasonic oscillation, picric acid, nitric acid, magnetostrictor, ammonia

ABSTRACT: An investigation to determine the effect of ultrasonic oscillations on gas nitration of steel revealed that ultrasonic waves increase the depth of the resultant nitride and improve the quality of microhardness. The reflection of the ultrasonic from solid and gas media, however, made its use in combination with gas nitration uneconomical. A further study has therefore been made on the effect of ultrasonics on the nitration process in a liquid medium using a device

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shown in the enclosure. The results of the experiments and the information available in literature justify the belief that the liquid nitration process is more effective where a gas phase is absent, and the substance containing the diffused element is in direct contact with the sample. Under such conditions the dissociation reaction will occur on the metal surface. Ultrasonics is found to accelerate the liquid nitration process in a neutral bath through which ammonia is passed. The nitrogen diffusion in a liquid medium is facilitated apparently by the great pressure produced as the cavitation bubbles are shut-in near the surface of the processed metal. Orig. art. has: 4 figures.

ASSOCIATION: Odesskiy politekhnicheskiy institut (Odessa Polytechnical Institute)

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